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Dissertation on pleurisy

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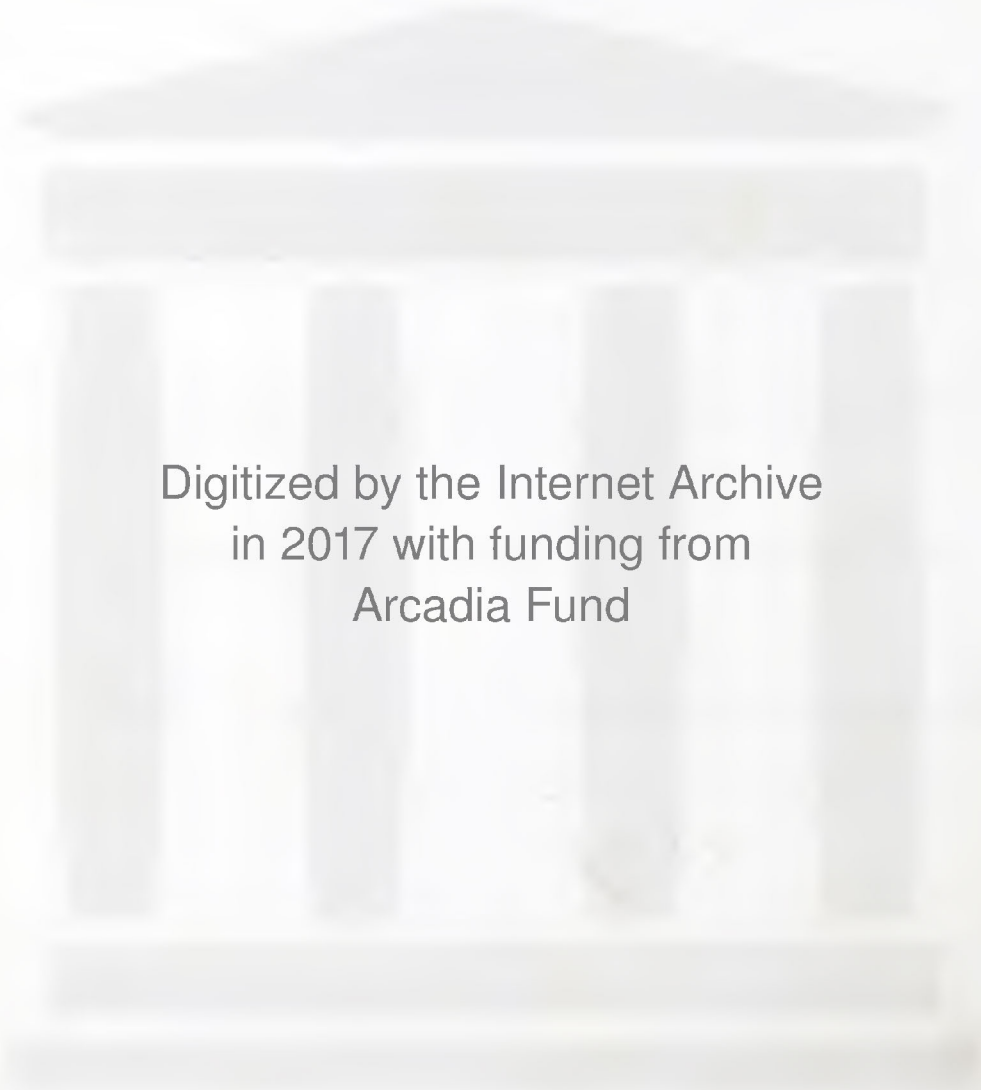

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V.

Dissertation on Pleurisy.

By

Silas Foster Lindsey,
of Union

Candidate for the Degree of Doctor in Medicine.

Pleurisy

Before entering upon the subject of pleurisy (which is a disease effecting the serous membrain covering the lungs and lining the thoracic cavity) we will take a cursory view of the anatomical structure of the thorax and pleuræ; The thorax may be compared to a flattened cone oblique at its base; and regularly truncated at its apex. It is formed by the dorsal vertebra behind, the sternum before and the ribs on the sides; This osseous structure is covered on the sides by the intercostal muscles; by the diaphragm beneath which seperates

the thoracic plane the abdominal cavity except the vacuity through which the aorta vena cava and the oesophigus passes. the outer outlet which is above is formed by the upper ribs first dorsal vertebra and sternum. The cavity of the thorax neurly resembles two half circles, the vertebra project inward so as to diminish the space between them and the sternum the ribs also project backwards increasing the lateral dimentions of the cavity of the thorax. The diaphragm as it is seen looking from above downwards has the appearence of a hemisphere placed obliquely with its convex side looking upwards the anterior margin being much higher than the posterior margin which is attached to the eleventh and twelfth ribs while the anterior margin is attached to the seventh and eighth

This cavity contains two of the vital organs viz the lungs and heart, these or-

organs are covered with a serous membrain
The membrain which inveloples the lungs
is called the pleura; that which encloses
the heart the pericardium. The lungs
occupy the two lateral cavities of the
thorax while the heart occupy the inter-
mediate space just back of the sternum
The pleurae after covering the lung ex-
tends backward on the thorax to the
spine then leavering the spine it pro-
ceeds forward towards the sternum
Each pleura proceeds in the same way
forming what is called the vertical
septum or mediastinum. There are two
mediastinum the anterior and posterior
The heard with its investing membrain
the pericardium occupy the space between
the two mediastinum The portions of the
pleura which lines the parieties of the chest
is called pleura costalis that which covers
lungs pleura pulmonalis The artiers
which supply the pleura are the intercostal

internal mammaries phrenic and inferior thyroid: the veins correspond with the arteries The pleurae are situated so that the two external surfaces are in close apposition and consequently at every expiration & inspiration there is a gliding of the pleura costalis over the pleura pulmonalis; these membranes in health secrete a small quantity of serous fluid to lubricate the two surfaces and prevent friction We will now consider some of the symptoms of pleurisy: At the commencement of this disease there is frequently present febrile symptoms such as chills followed by heat of skin frequent pulse loss of appetite furred tongue scanty urine The fever in the commencement is often very high and sometimes undergoes a daily remission, and exacerbation the chills occurring in the morning the fever in the evening The pulse is frequent full and hard it is also remarkable for its hardness This is a

diagnostic sign to distinguish pleurisy from pneumonia the pulse we know in pneumonia are soft and frequent

Pain is one of the first characteristic signs of pleurisy. The pain commonly situated in the side usualy referred to below the breast or lower edge of the pectoral muscle being described by the patient as though a knife were thrust into the side, laceinating, stating, &c increased by inspiration by coughing and often by pressure; the inspirations being short and frequent, and all attempts to cought will be repressed by the patient as much as possible;

The duration of this pain is various it may extend through the whole course of the disease & be diminished in the course of five or six days. The pleuritic stitch is variable in regard to its situation, duration and severity, it is often spread to the axillar shoulder & breast the

clavicle sometimes it extends over the whole hypochondrium and may been mistaken for inflammation of the peritonæum it has also been mistaken for a sign of syphilis Gannec says that it is not uncommon to have the pain pass to the other side without any transference of the inflammation occasionally even from the beginning of the disease we have the stitch on the left side and the pleurisy on the right. There is one way of distinguishing pain of pleurisy whatever be its situation duration or severity it is always aggravated by a deep inspiration cough and intercostal pressure, and may often be suspended by holding the breath

Respiration

The respiration in pleurisy varies in different cases. In the commencement it is generally more or less difficult or embarrassed in consequence of the pain produced by a full

expansion of the lungs the inspiration stops short before it is completed
After effusions have taken place the dyspnoea arises from compression of the lung by the effused fluid. As less air enters the lungs the patient is obliged to increase the number of respirations in a minute in order to properly aerate the venous blood. The respirations i.e. 14 to 18 alternations in a minute and the respiratory movements bear a proportion to the contractions of the heart as 1 to 5 or 4½ when this proportion is departed from we may suspect some disease of the respiratory organs or heart"
It is not certain after effusions that the dyspnoea will remain troublesome
"Indeed stats that there are persons with pleuritic effusions enough not made to fill but to dilate that side of the chest in which it exists who appear nevertheless to be quite free from dyspnoea

Indeed further appears that this absence of dyspnoea is not restricted to those cases in which the collection of fluid has taken place slowly; but sometimes happens even in patients in whome pleurisy has led to abundant effusions in a few days. The dyspnoea may be distressing for a time; then the system will accomodate itself to the diminished respiration and the sound lung will perform the work of both without much inconvenience, I saw a case where fluid effusions had taken place to the amount of four pints nearly; nevertheless the patient could walk about without much difficulty of breathing. In some cases the dyspnoea never ceases to be troublesome in others it may remain passible throughout the disease. Hurried respiration and dyspnoea are not certain indications of pleurisy: in pneumonia we have dyspnoea so likewise in inflammation of the bowels the res-

-pirations are hurried as they take the di-
aphragm descends it presses upon the viscera
of the abdomen causing pain in inflam-
mation of the bowels the respiration is
performed by the intercostal scaleni ser-
rati and other muscles in pleurisy it
is performed by the abdominal muscles

Cought

The cought of pleurisy when
present is characteristic of the disease and
not likely to be mistaken It does not
occur in paroxysms as in the cought of
pertussis which is characterized by a suf-
focating convulsive cought terminating
in an ejection of thick glary mucus
nor is it likely to be confounded with
the cought of phthisis which occurs in
the morning is dry and not fatty as is
caused by an irritation about the
throat The cought of pleurisy is short
ineffectual hack half suppressed by the
patient on account of the pain which it

causes is dry. It is accompanied with a colorless expectoration if the expectoration is mucous & frothy we may fear bronchitis or if muco-purulent pneumonia but in all cases there will be other diagnostic signs which may always be complicated with pleurisy

Position of Comfort

The position which the patient accepts varies with the progress of the disease when first taken they generally lie on the sound side on account of the pain after effusion has taken place and the lung becomes compressed and obstructed the patient lies on the side that is diseased if he were to lie on the sound side the weight of the fluid would have a tendency to compress the sound lung in some cases the patient lies on the back but most commonly he lies in what may be called the diagonal posture neither on the back or side but on his back & slanting on his side

It have thus far been I deing of the
formation of the cavity of the thorax and
some of the symptoms of pleurisy viz
pain, dyspnoea, cough and position of
the patient, It shall in the next
place proceed to treat some of the physical
signs of pleurisie.
The first sign we shall consider are those
indicated by the stethiscope we hear a
sub'ue crackling sound at through
there may be roughness or depression but
attention of the true pleura. This sound
is seldom heard except in cases of the
pleurisy, where no effusions have taken
place and may last for a length of
time After effusions have commenced
the vesicular murmur diminishes in pro
portion as the effusion increases
Generly at the commencement of this
disease fluid effusion, like fluid filling
the chest and causing a dull sound on
percussion which is discovered first at

the lower part of the lung, and extends up as the effusion is more or less abundant The fluid may be effused to the amount of several pints in a few hours therefore it is of the greatest importance that the disease be recognised in the commencement— The upper lobes of the lungs are not covered with fluid unless the effusions are pretty copious Sometimes owing to old adhesions the lower lobes may sound clear, in most cases if a part of the chest is clear the dullness will shift by shifting the position of the patient— the fluid (1) floating the lung causes a dull sound at the most depending part The lung as the accumulation increases contracts the air is expelled and ceases to permeate the organ I have seen cases in which the lung was compressed so that it would sink in water and had the appearance of being solid

Another sign of the enlargement of the diseased side, when the accumulations are not extensive it is not perceptible however when small expansions have taken place they may be detected by admeasurement, passing a tape around the chest and observing it upon itself you will find that half of the tape will more than reach around the sound side and will not extend around the diseased side, so also passing a tape around fixing it at the sternum and spinous process of the dorsal vertebra at every alternation of breathing the tape will be seen to tighten on the sound side and it will be seen slowing on the diseased side remaining partially stationary, it must be recollected in making comparisons and admeasurement that the right side of the healthy is the largest in most persons

The difference can frequently be detected by the eye the diseased side rising with inspiration but does not contract near as much with expiration as the sound side In some cases where there is copious accumulations the heart and other organs will be displaced by the pressure of the fluid Says Dr Williams if the effusions are in the left side the heart may be felt to beat on the right of the sternum instead of between the cartilages of the fourth and sixth left ribs" so also if the effusions are on the right side the liver may be displaced so as to be far below the ribs and simulate a tumor in the abdomen and says Dr Williams we have known more than one case of latent pleurisy in which this tumor was long supposed to be the chief disease, the patient not complaining at all of the chest" The heart may be pushed out of its nat

usual position further to the left side of the chest When the mediastinum is displaced it may be distinguished by percussion on the sternum which if the parts are in their natural position sounds clear but if the mediastinum be crowded to either side the bone will give a dull sound this sound may extend half an inch or an inch to either side All these displacements may be produced by pneumothorax this will be duly detected by the hyperresonant sound on percussion, another valuable sign of pneumothorax when present is succussion we hear a splashing sound by placing the ear on the side of the patient and giving him a sudden jerk or jog this sign is a very unequivocal one when present and not not likely to be mistaken The early and characteristic effect of pleuritic effusion is the interception of the vibratory thrill which as Dr Watson says is rapidly

perceived by even an untutored observer"
The vibratory thrill in most persons may be distinguished by placing the hand flat on the surface of the chest during the making of the humming inspiration
If the voice of the patient is deep toned or bass the vocal vibrations may be felt very distinctly The high notes are not so easily distinguished, as in females with high voices, it is the opposite of Egophony which is heard in females and those who have high voices the high tones of the voice penetrate the smaller bronchial tubes, but the low bass voice is limited to the larger tubes and if strong produces in the lungs a trembling sensation which may be easily distinguished as the effusion increases and separates the pulmonary from the costal pleura the vibratory thrill will become deadened this sign is not always to be depended upon, if there is adhesions of the lungs

in the parietes of the chest the vibratory
ger will be augmented and increased be-
yond its natural degree so also in con-
stitutions of the lung the vibrations are
felt in an increased degree in [illegible] be
obstruction in the bronchia which distract the
vocal intirely
Egophony The modification of the voice
called Egophony a goat voice auscultation,
Dr Williams) most distinctly in the
space between the third and six ribs
which correspond to the middle sized bron-
chial tubes; nearer the spine it is generally
mixed with a louder and more unifor-
resonance which is common bronchophony
from the larger tubes at the root of the
lung. Says Dr Williams two circumstances
are remarkable in egophony first that the
voice is more audible at the very part where
the lung is pushed away by the liquid
in consequence of the liquid by compressing
the porous tissue of the lung enabling it

to transmit better the sound of the voice from its interior The second point is that the voice is altered in character this may be supposed to be caused by the nature of the matter which it has to pass through a thin layer of liquid which being thrown by it into irregular vibrations trembles and clears now checking the sound now transmitting it with increased force so that the voice comes through trembling and wire

Chronic Pleurisy

The beginning of chronic pleurisy is marked in many cases, the patient having had an attack of acute pleurisy or a mild form the true nature of the disease not been discovered until after some exposure the patient is seized with an attack like a second form the chronic which had been latent is aroused in all its force Generally in acute pleurisy the attack is accompanied with high inflammatory fever

while in the chronic form there is absence of pain it is of a metallic quality, sometimes a chronic form of pleurisy is met with in which the patient has no recollection of ever having had pleurisy, in fact we find frequently in post mortem examinations adhesions of the two pleura to such other showing that the patient has had pleurisy in some former period of life Dr Flint thinks that the majority of persons over twenty five years old have had pleurisy although they may not have been aware of it themselves The patient does not always have pain in the side during this disease

Morbid Anatomy

I have omitted giving a discription of the morbid anatomy until we had given some of the symptoms It will be recollected that in the commencement of this subject we gave a short discription of the pleura as seen in health we now shall consider it as seen in post mortem examinations of the pleura

[illegible] of inflammation of the
pleura is the depositing within the cavity
of the pleura of serous fluid and coagulable
lymph. This fluid (which is in its natural state
a thin inodorous fluid with a light straw
colored appearance) becomes organized and
forms what is called false membrane. The
membrane has its blood vessels and nerves
and secretory vessels, and [illegible] some
time spoken of as a thickening of the pleura
is the deposition of coagulable lymph forming
a coating upon the pleura. This membrane is sometimes cartilaginous and
partly ossified of considerable thickness
and binds down the lung preventing
it from expanding after the primary
disease is removed, [illegible] and
is opposed to a fluid character, it
is said by some that the secretion of pu
rulent fluid takes place from the surface
of the false membrane. The extent of the
false membrane is in proportion to the

inflammation again attacks the costal and pulmonary pleura it is observed entirely obliterating the cavity or they may be bound down by bands of coagulable lymph the intervening spaces being occupied by serous fluid

The Peritoneum which lines, but in the pleura are not rarely diseased in the beginning of the inflammation the membrane appears red and the vessels are slightly enlarged

The secretion from the serous membranes is at first diminished but it soon begins with the increased action of the vessels to pour forth an increased quantity of fluid which is in some cases prodigious in amount, which I have stated before may amount to several pints or even quarts in a few hours in the abdomen It has been thought by some that the lining was absorbed by the fluid but this is not the fact it will be found by dissection to be diseased with patches of redness and the cellular tissue infiltrated with

e to be entirely devoid of air and does not crepitate under the finger. It is however capable of being restored by insufflation unless its cellular structure be destroid, then it is said to be emphysematous

Emphysema

The name of emphysema was originally applied by the ancients to any collection of purulent matter, as used by modern writers it is restricted to effusions into the pleura only emphysema has not many distinguishing signs they are in common with the signs, when there is serum or lymph effused but in a more increased degree, a hectic fever or constitutional disturbance be present it is quite certain that the effusions are purulent, however purulent effusions may take place without equal constitutional disturbance or hectic

It is a general law that purulent matter pent up in any of the tissues of the body tends towards the surface, or a cavity having a

communication with the exterior of the body. Purulent fluid will sometimes make its appearance at a distance from the seat of the disease, as we see in lumbar abscess. The inflammation of the parts in which the cellular tissue is the principal element, will extend down the region of the groin, perhaps to the inside of the thigh or leg, and the matter appear in the form of a tumor which will be seen to become fluctuating at any time after the swelling has commenced. In abscesses connected with the spine, the pus will sometimes make its appearance in the hypogastric region, and in some cases in the iliac region, but more frequently it will be found in the ~~[illegible]~~ cellular tissue, and the matter after burrowing, will point to the surface, and appear in the form of a tumor which will at first resemble a gland.

[illegible] petal exhaling the odour of sulphuretted hydrogen, and with this change in the discharge there [illegible] constitutional disturbance [illegible] manifesting itself in form of irritative fever, with burning pain and heat of skin, alternated with collapse. Acute cases sometimes proving typhoid in character, and a general tendency of depressing power to characterized through the [illegible] distinguished by the violence of the disease which it excites."

Counts of Plaintiff

[illegible] We think that anything which naturally tends to impair the health, and subjects it to disease, and [illegible] tends to [illegible] the mind, and to [illegible] by producing the [illegible] the walls of the chest and [illegible] injuries may run into [illegible] We think that tubercles of the lungs [illegible]

a murmur the origin of which cannot be pleural friction. We think they are produced by direct interference of the direct continuity to the air in the bronchi or by the discharge of the matter of a vomica through an abnormal passage into the pleural cavity. Inflammation of the lungs may be propagated to the pleura. In cardiac disease with an enlarged and hypertrophied condition of the heart we frequently find a serous effusion into the pleura.

Diagnosis

Formerly at the bedside we thought we could distinguish pleurisy from pneumonia at once by the fact that they were both implicated in and required not by the same treatment, but we know that it is of the most importance to distinguish between the two diseases for in pleurisy we may have several pints of liquid in the chest and a fever he may not have a moment like means to provoke the

delayed or not rendered judicious by till
after the effusions are ceasing or at the same
time the patient by accumulating matter
or new deposits in the cavity of the
pleura or pulmonary termination of the air
passages. It should be the object both
for present and the probable termination
will as pulmonary symptoms Dr Bissel the
present cause giving rise to the existence
of tubercles in the lungs

Treatment

In the first stage
pleurisy is generally to be expected to be
treated at present with antiphlogistic
discipline. If the disease must [illegible]
diagnosis the patient has pain in
the side difficulty of breathing and perhaps
a slight cough the remedy must be used
I would here remark that pleurisy sometimes
occurs and runs its course without
pain or slight in this case the
Bleeding according to the age and strength

of the patient ... the first and best remedial agent which can be had recourse to and this should be managed so as to avoid the arterial excitement ... When ... make use of ... the patient can be ... then ... should be ... stimulated ... the spirits ... speedily ... will ... be ... the ... patient ... a large ... after ... the ... and ... can ... with ... to ...

Obj. 2. That ... bear bleeding better or call for it more strongly than acute pleurisy. The patient should be placed in the erect position and the blood allowed to flow until ... inspiration is made upon the pulse or faintness is produced, from twelve to twenty ounces may be taken at the first bleeding in this proportion as ... the inflammation ... the chest ... and the ... of the patient. Should the breathing become difficult in a few hours. Should

ul it again ; I thought the patient could bear it, & cup the side at 4 p.m by leeches
Sir Anne says cupping in these cases is in my opinion preferable to leeches he thinks the blood is abstracted more quickly and safely done by them
In internal inflammation, as in the case I cupped which exist the most such as Brain Pulmonary Abdominal and uterine
Tartar emetic is also effectual in this disease than most other diseases of the chest, some practitioners think it not adapted to pleurisy
Sir Anne however thinks it beneficial in large doses is commonly only will bear it by patients afflicted with pleurisy and he says I am in the habitual employment of using this drug. It contributes powerfully in most cases speedily to subdue the inflammatory action and thus answers with the necessity of abstracting so large a quantity of blood, it should be restricted to the inflammatory stage

[illegible] [illegible] [illegible] [illegible] [illegible] [illegible] pow-
der is recommended, and to any given quan-
tity to its specific effect in the constitu-
tion i.e. in small and repeated doses
guarded by opium is recommended by
Dr Watson, but [illegible] purgatives are
used in some cases with benefit
The next by which to take off the
acts of the disease, after this is accomplished
and fluid is effused and [illegible] will
be directed to prevent the absorption
of this fluid Mercury combined with
ipecacuanha, and opium to kill the pain and
prevent the calomel from passing off too
freely by the bowels is highly extolled by
Dr Williams If the patient has a
[illegible] appetite of the best gentle-
spirit may be drunk from [illegible]
small doses the [illegible] to
the secretion of [illegible] and
promote the flow of urine C Hooper has
used elaterium in this disease to [illegible]

promote [illegible] the [illegible] [illegible]
given [illegible] small and [illegible] [illegible]
[illegible] [illegible] [illegible] has been used with advantage to promote
absorption. [illegible] [illegible] [illegible]
a valuable auxiliary to the other [illegible]
The diet must not be of a [illegible] light kind
and the patient must not be restricted to
those articles which are of an innutritious character, [illegible]
tions must be substituted the patient must have
a more full diet and be allowed to
[illegible] with exercise
If the disease [illegible] the chronic [illegible]
the plan of treatment must be adopted,
should the patient sink through a
debilitating symptoms the [illegible] must be
[illegible] [illegible] [illegible] adopted
Dr Good says not unfrequently [illegible] [illegible]
appear the mineral tonics, the [illegible] mild
chalybeates, the mineral acids and the chalybeate
Iodide of Iron will [illegible]

a few ml starch water should be used
The hydrochlorate of potash or chlorate of potash
iodide may be found found useful Dr Stokes
recommends iodine internally and externally
in the form of Lugols mixture
The tincture of iodine is recommended for
medicinal use if it can be procured genuine
to us by the fact of the iodine which we
know is apt to be met in combining with water
in the stomach the iodine is precipitated thus
causing severe pain & vomiting These unpleasant effects may be obviated by giving
some starch after each dose & allow the
patient to eat a bit of bread the starch
of the bread combining with the iodine in the
form of iodide of starch we have but little to say
in regard to this as it is disagreeable & annoying
to give large doses Dr Buchanan recommends
that by means of the starch the iodine is
converted into hydriodic acid and in this
form of combination enters the circulation
There are various other means that will be

found adopted in different cases under
different circumstances and I must omit
them for want of time, as I fear I have already
wearied your patients, Another means of
removing the fluid is by puncturing the
side and drawing off the liquid or purulent
matter. I do not propose to consider this
part of the treatment for want of time
but must refer the reader to the books
for the operation of paracentesis thoracis.

S. [illegible]